

# 20/20MI, 20/20ML

## Flame Detector “Mini” Series

The 20/20M Mini Series Flame Detectors are high performance, unique IR3 and UV/IR flame detectors featuring lower cost, lower power, and more compact structures. The mini detectors are highly resistant to harsh environments, immune to false alarms and are designed for use in OUTDOOR or INDOOR applications. The IR3 model is also available as intrinsically safe (I.S.) approved format.

The detectors’ small size, low cost and low power allow easy installation in small or congested areas where Ex hazardous area approvals are not a prime requirement. Both models are packaged in rugged, stainless steel enclosures that are less than 50% of the size of our standard explosion-proof detectors and weigh only 2.5 lbs (1.2 kg).

### 20/20MI-1

Mini Triple IR (IR3) Flame Detector The 20/20MI-1 is an economical and compact Triple IR (IR3) Flame Detector with the highest immunity to false alarms, in a rugged stainless steel housing. It is available in either general-purpose, non-Ex approved or intrinsically safe approved (EEExia) format.

### 20/20MI-3

Mini Triple IR (IR3) Flame Detector The 20/20MI-3 is similar to the 20/20MI-1, but has lower sensitivity. It is designed especially for small areas that require fast and reliable detection, with high immunity to false alarms. The 20/20MI-3 is suitable for applications like Turbine Enclosures, Heavy Duty Vehicles and Windmills.

### 20/20ML

Mini UV/IR Flame Detector The low cost, compact, lightweight 20/20ML UV/IR Flame Detector comprises both UV and IR sensors, detecting hydrocarbon-based fuel and gas fires, hydroxyl and hydrogen fires, as well as metal and inorganic fires at distances of up to 50 ft (15m). The UV sensor incorporates a special logic circuit that helps prevent false alarms caused by solar radiation. Simultaneous detection of radiant energy by both the UV and IR sensors triggers an alarm signal.

### APPLICATIONS

Aircraft Hangars, Off Road Heavy Duty Vehicle, Office Areas and Atrium Areas, Waste Handling, Unmanned Gas Stations, Marine Vessels Engine Rooms, Automotive parts manufacturing, Burners, boilers, and heaters, Car parking towers and garages, Chemical industry, Nuclear power plants, Power generation – pumps, generators and unmanned stations, Recreational and sports arenas (facilities), Storage areas



### KEY FEATURES

- Immune to False Alarms
- Large Field of View (100° horizontal/vertical)
- Low Power Consumption, High-Speed Response
- Standard 4-Wire Connection
- 4-20mA Sink or Source (3-4 wires) configuration
- RS-485 Modbus Compatible
- Automatic and Manual Built-In-Test (BIT)
- User-Programmable Function Configurable via software from a PC or handheld device
- MTBF Minimum 100,000 Hours
- 3 Year Warranty

## 20/20MI, 20/20ML

		20/20MI-1	20/20MI-3	20/20ML
Spectral Response		Triple Spectrum	Triple Spectrum	UV/IR Dual Sensor
		ft (m)	ft (m)	ft (m)
Detection Range	Gasoline	133 (40)	33 (10)	50 (15)
(Highest Sensitivity	n-Heptane	133 (40)	33 (10)	50 (15)
Setting for 1 ft <sup>2</sup>	Diesel Fuel	90 (27)	23.1 (7)	37 (11)
(0.1m <sup>2</sup> ) pan fire.	JP5	100 (30)	23.1 (7)	37 (11)
	Kerosene	100 (30)	23.1 (7)	37 (11)
	Alcohol (Ethanol)	100 (30)	24.8 (7.5)	25 (7.5)
	IPA (Isopropyl Alcohol)	24.8 (7.5)	25 (7.5)	
	100 (30)			
	Methanol	100 (30)	24.8 (7.5)	25 (7.5)
	Methane*	40 (12)	10 (3)	15 (5)
	LPG (Propane)*	40 (12)	10 (3)	15 (5)
	Hydrogen*	15 (5)		
	Silane*	15 (5)		
	Polypropylene Pellets	16 (5)	6 (2)	15 (5)
	Office Paper	50 (15)	13 (4)	12 (4)

**Approvals (20/20MI-1, 20/20MI-3)** ATEX\*\* (do not apply to 20/20MI EX) - 04ATEX2010 - EX II 1 GD, EExia IIC T5 (60°C), T4 (85°C) - Zener barriers (not included) are required to achieve the stated approval

#### Functional & Other Approvals (20/20MI-1)

FM	Project ID 3020071
EN54-10 (VdS)	G207073
CPD	0786-CPD-20916
GOST	R POCC US.HO06.B00103
DNV	A-12318
ABS	Project No. 1627964
GOST K	KZ.7500507.01.01.00029

#### Functional Approvals (20/20MI 3)

FM	Project ID 3013906
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#### Functional Approvals (20/20ML)

FM	Project ID 3020071
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## 20/20MI, 20/20ML

**SPECIFICATIONS** Specifications subject to change without notice

<b>Response Time</b>	Typically 5 sec.		
<b>Adjustable Time Delay</b>	Up to 30 seconds		
<b>Sensitivity Range</b>	20/20MI-1 4 sensitivity ranges for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) gasoline pan fire: 35 ft (11m) up to 140 ft (43m) 20/20MI-3 4 sensitivity ranges for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) gasoline pan fire: 7.5 ft (2.5m)–33 ft (10m) 20/20MI-3 1 sensitivity ranges for 1 ft <sup>2</sup> (0.1m <sup>2</sup> ) gasoline pan fire: 50 ft (15m)		
<b>Field of View</b>	100° horizontal, 100° vertical		
<b>Built-in-Test</b>	Manual and Automatic BIT		
<b>Temperature Range</b>	Operating: -40°F (-40°C) to +160°F (+70°C)	Storage: -40°F (-40°C) to +160°F (+70°C)	
<b>Humidity</b>	Up to 95%		
<b>Power Supply</b>	Operating Voltage: 18-32 VDC		
<b>Power Consumption</b>	20/20MI-1, 20/20MI-3	20/20ML	
	Max. 25 mA in stand-by	Max. 40 mA in stand-by	
	Max. 50 mA in alarm	Max. 70 mA in alarm	
<b>Electrical Connection</b>	12 wires 6 ft (2m) cable (for junction box connection) Optional: 12-wires electrical connector (the suitable connector will be supplied)		
<b>Electrical Input Protection</b>	According to MIL-STD-1275B		
<b>Electromagnetic Compatibility</b>	EMI/RFI protected CE Marked		
<b>Relays*:</b>	Alarm and Fault SPST volt-free contacts rated 2A at 30 VDC Fault relay normally closed, Alarm Relay normally open		
<b>*The Relays do not apply to 20/20MI EX approved version</b>			
<b>4-20mA</b>		20/20MI-1, 20/20MI-3	20/20ML
	Fault:	0 + 0.5mA	0 + 0.5mA
	BIT Fault:	2mA + 10%	2mA + 10%
	Normal:	5mA + 10%	4mA + 5%
	IR Detection:	---	8mA + 5%
	UV Detection:	---	12mA + 5%
	Warning:	10mA + 5%	16mA + 5%
	Alarm:	15mA + 5%	20mA + 5%
	Resistance Loop:	100-600 Ω	100-600 Ω
<b>Dimensions</b>	4" x 4" x 2.5" (100 x 100 x 62mm)		
<b>Weight</b>	St.St 316L 2.5lb (1.2 kg) Tilt Mount 0.8lb (0.37 kg)		
<b>Enclosure</b>	Stainless Steel 316L with electro polish finish		
<b>Environmental standards</b>	Meets MIL-STD-810C for humidity, Salt & Fog, Vibration, Mechanical Shock, High Temp, Low Temp		
<b>Water and Dust</b>	IP66 and IP67 per EN60529, NEMA 250 6P		
<b>PART NUMBER</b>	85-2020MI		



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